NEW WORLD VISTAS

AIR AND SPACE POWER FOR THE 21ST CENTURY

SUMMARY VOLUME

This report is a forecast of a potential future for the Air Force. This forecast does not necessarily imply future officially sanctioned programs, planning or policy.

Foreword

In the fiftieth year of the Air Force Scientific Advisory Board, both the Air Force and the Nation are at the brink of a new era. Our Cold War adversary no longer exists, and we now face threats which are not precisely defined. The situation is further complicated by changing alliances as much as by the absence of well known adversaries. Armed conflict around the world shows us that the world is still a hostile place, but responses which may have been appropriate during the Cold War are no longer appropriate. There appears, however, to be even more widespread pressure for the United States to remain a stabilizing force throughout the globe. Our military forces are involved in dangerous humanitarian and peacekeeping operations at an increasing rate, and anti-terrorist operations can be expected to increase as well. Although participation in these operations may require military action, we are expected to respond effectively with minimum injury and loss of life on both sides. Further, the domain of conflict is moving from earth into space and even into cyberspace. The balance of influence in the information domain has shifted from defense organizations to commercial organizations, and a similar shift will occur in space during the next decade. The crucial importance of detailed and timely knowledge and rapid communications to the successful pursuit of our new missions will demand creative use of commercial systems and technologies. This will produce an intimate intertwining of commercial and military applications to an extent not yet encountered. The intertwining will blur the distinction between threat and asset, offense and defense, and, even, friend and foe. Our future enemies, whoever they may be, will obtain knowledge and weapons better than those we have at present by making rather small investments. New sensor fusion and distributed processing capabilities will make operational distinctions such as onboard and offboard or space and ground obsolete. The rapid operational tempo enabled by complete and current knowledge, the operational demands generated by new missions, and the geographical constraints produced by a decreasing number of worldwide bases will require weapon system performance beyond that of existing systems. New technologies will permit improvement of existing systems, but new systems and new concepts will be needed to cope with the world of the 21st century.

There are strong analogies and contrasts between the world situation today and that at the time of the first Scientific Advisory Board study, *Toward New Horizons*, fifty years ago. We had won a devastating world war in 1945. In 1995, we have won the Cold War -- a war less bloody, but one which always had the possibility of destroying most of civilization. In both cases, we eliminated the threat from a powerful enemy, but then and now we have understood that preparedness and technological superiority are the keys to national security. After 1945, the United States moved to establish bases and influence abroad, but in 1995 we are reducing our physical presence abroad while we attempt to maintain a moral presence. It was clear in 1945 that the technology gains of the first half of the twentieth century should be consolidated to create a superior, technology- and capability-based Air Force which could respond to threats not yet imagined. The world which emerged from the destruction of World War II could not have been predicted in 1945, but the emphasis on technology and capability rather than on assumptions about future geopolitical scenarios served us well as we entered the Cold War. In the intervening 50 years, we have treated increasingly specific problems related to the Soviet threat. Now, that threat has disappeared. It is appropriate to return to the idea that development of broad superior capabilities through application of new technology will maintain the United States Air Force as the most powerful and effective aerospace force in the world and will enable the Air Force to

discharge its responsibilities as an equal partner with the other Services in the defense of the Nation.

These considerations and the broad applications of new, largely commercial, technologies which are now, or soon to be, possible have led us to present the conclusions of the participants of *New World Vistas* as an integrated, capability-based, report. Realization of these capabilities will permit future members of the Air Force of all ranks to know, to plan, to act, and to evaluate in the detail appropriate to their responsibilities. One should not doubt that the 21st century Air Force which will be enabled and, indeed, demanded by its new capabilities and responsibilities will hardly be similar to the Air Force of today. The changes will be as profound as those experienced by the Army in moving from horse to tank or by the Navy in converting from sail to steam.

The Board wishes to thank the numerous Air Force people and organizations for their tremendous help in the preparation on *New World Vistas*. Special recognition goes to the United States Air Force Academy and the Air University for their assistance and counsel.

Finally, we have endeavored to define the capabilities which will result from emerging technologies during the next three decades, and we have attempted to point the way toward achieving those capabilities as the Air Force enters the Information Age. We hope that our work will succeed in helping to prepare the Air Force for the approaching revolution in the use of military power.

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